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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,039	07/27/2001	Ikerionwu A. Akwani	SP01-013	9920

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CORNING INCORPORATED  
SP-TI-3-1  
CORNING, NY 14831

EXAMINER

STAHL, MICHAEL J

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/917,039

**Applicant(s)**

AKWANI ET AL.

**Examiner**

Mike Stahl

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 14-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 and 14-21 is/are allowed.
- 6) ☒ Claim(s) 22 and 23 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 27 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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This office action is in response to the amendment filed July 14, 2003. The changes to the claims have been entered. Claims 1-11 and 14-23 remain under consideration. All objections and rejections made in the last office action are withdrawn in view of the amendment.

***Information Disclosure Statement***

The information disclosure statement filed July 14, 2003 has been considered. An initialed copy of form PTO-1449 is attached.

***Claim Objections***

Claim 23 is objected to because it refers to silica-germania-titania glass which is not mentioned in its parent claims. It appears that claim 23 should depend from claim 22 instead of claim 19. This dependency will be assumed for purposes of comparison with the prior art in this office action.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Storgaard-Larsen et al. (WO 97/23426).

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Storgaard-Larsen discloses a glass composition having a  $\text{Ge} / (\text{Si} + \text{Ge} + \text{Ti})$  mole ratio of 0.14 and a  $\text{Ti} / (\text{Si} + \text{Ge} + \text{Ti})$  mole ratio of 0 (p. 6 lines 2-7). The Ge and Ti mole ratios lie within the ranges specified by claim 22. The glass composition is used as the core layer in a planar waveguide (p. 6 lines 2-7; fig. 1).

Storgaard-Larsen does not disclose a liquid crystal element coupled to the waveguide. A number of liquid crystal elements suitable for coupling to a planar waveguide are well known to those of ordinary skill in the art, including for example polarization controllers, switches, and shutters. It would have been obvious to a skilled worker to couple any relevant liquid crystal optical element to the Storgaard-Larsen waveguide in order to have said element perform a desired optical function on the light conducted by the waveguide. The proposed addition would have met the requirements of claim 22.

As to claim 23, the glass composition taught by Storgaard-Larsen generally has a refractive index from 1.46 to 1.51, which overlaps the recited index range. It is considered inherent that the glass also has a coefficient of thermal expansion within the claimed range since its composition is similar to that of applicant's glasses.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoaglin et al. (US 5841933).

Hoaglin discloses optical fibers with cores having specified silica-germania-titania glass compositions. In one example, the composition includes 5 wt. % titania, 16 wt. % germania, and the remainder (79 wt. %) silica (col. 3 lines 44-47; claim 14). These weight percentages are equivalent to a  $\text{Ti}/(\text{Si} + \text{Ge} + \text{Ti})$  mole ratio of about 0.04 and a  $\text{Ge}/(\text{Si} + \text{Ge} + \text{Ti})$  mole ratio of

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about 0.10. This exemplary Hoaglin glass composition has Ge and Ti mole ratios which lie within the ranges set forth in claim 22.

Hoaglin does not disclose a liquid crystal element coupled to the fiber. Liquid crystal elements suitable for coupling to optical fibers are already well known in the art, and include elements such as polarization controllers, switches, and shutters. It would have been obvious to a person having ordinary skill in the art to couple any relevant liquid crystal optical element to the Hoaglin fiber in order to have said element perform a desired optical function on the light conducted by the fiber. The proposed combination would have satisfied the limitations of claim 22.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

***Allowable Subject Matter***

Claims 1-11 and 14-21 are allowed. Claims 9-11 and 17 remain allowed for the reasons set forth in the last office action.

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Applicant amended claims 1 and 5 to eliminate the possibility of having no nitrogen in the glass composition, in other words, the claims expressly require an oxynitride substance. None of the references previously applied to claims 1 or 5 teach or suggest intentionally including nitrogen in the glass composition. Claims 2-4, 6-8, 18 and 19 are allowed by respective dependence from claims 1 or 5.

With regard to claim 14, applicant argued that claim 14 recites a silica-germania-titania glass and thus requires titania to be present, and noted that the previously applied Storgaard-Larsen reference does not disclose or suggest titania. The examiner agrees that the reference lacks titania, but notes that rejection was based partly upon the inclusion of zero in the range for titania mole ratio as originally claimed. However, since applicant has amended claim 14 to remove the lower limit of zero for the titania mole ratio, and has emphasized that "silica-germania-titania" means titania must be present, the examiner has withdrawn the former rejection under Storgaard-Larsen. Claims 15, 16, 20, and 21 are allowed by dependence from claim 14.

### ***Conclusion***

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

US 2004/0008968 is not available as prior art but is made of record on the attached PTO-892 form because it discloses the use of germanium-doped silicon oxynitride in planar waveguide devices.

Any inquiry concerning this communication should be directed to Mike Stahl at (571) 272-2360. Official communications which are eligible for submission by facsimile and which pertain to this application may be faxed to (703) 872-9306. Inquiries of a general or clerical nature (e.g., a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at (703) 308-0956 or to the technical support staff supervisor at (703) 308-3072.

MJS

Michael J. Stahl  
Patent Examiner  
Art Unit 2874

  
HEMANG SANGHAVI  
PRIMARY EXAMINER

January 24, 2004